



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,651	03/16/2004	Shusuke Akazaki	107101-00050	1118

4372 7590 04/05/2006  
ARENT FOX PLLC  
1050 CONNECTICUT AVENUE, N.W.  
SUITE 400  
WASHINGTON, DC 20036

EXAMINER
----------

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
----------	--------------

3748

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/800,651

Applicant(s)

AKAZAKI ET AL.

Examiner

Tu M. Nguyen

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 7-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 08/975,101.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                    |                                                                             |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____                                                |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>031604</u> .                                                              | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

1. An Applicant's Preliminary Amendment filed on March 16, 2004 has been entered. Claims 2-6 and 15-24 have been canceled; and claims 1, 7, and 12 have been amended. Overall, claims 1 and 7-14 are pending in this application.

### ***Specification***

2. The abstract of the disclosure is further objected to because the abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 3748

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Adamczyk, Jr. et al. (U.S. Patent 5,524,433).

As shown in Figure 7, Adamczyk, Jr. et al. disclose a system for purifying exhaust gas generated by an internal combustion engine (32) having an air intake system (37) and an exhaust system which includes an exhaust pipe (43) extending from an exhaust manifold of the engine and a catalyst (44) installed in the exhaust pipe, the exhaust system exhausting gas generated by the engine to the atmosphere, comprising:

- a bypass (not numbered but clearly shown) branching out from the exhaust pipe at a location downstream of the catalyst (44) and merging to the exhaust pipe downstream of the branching point;
- an adsorber (31) installed in the bypass;
- valve means (47) which closes the bypass;
- a conduit (84) connected to the bypass at one end and connected to the air intake system for recirculating the exhaust gas to the air intake system;
- valve control means (35) which operates the valve means to open the bypass for a period since starting of the engine to introduce the exhaust gas to the bypass such that the adsorber installed in the bypass adsorbs the unburnt component in the exhaust gas (see Figure 1); and then closes the valve means to recirculate the adsorbed unburnt component through the conduit with the exhaust gas after having desorbed from the adsorber (see Figures 2 and 7);
- EGR control means (82) which causes the exhaust gas introduced in the bypass to be recirculated to the air intake system through the conduit;

Art Unit: 3748

- fuel injection quantity determining means (35) for determining a quantity of fuel injection to be supplied to the engine (lines 24-27 of column 7);
- air-fuel ratio detecting means (39) for detecting an air-fuel ratio of the exhaust gas;
- feedback loop means (35) having an adaptive controller with an adaptation mechanism that estimates an adaptive parameter (an amount of HC desorbed from the adsorber), the feedback loop means calculates a feedback correction coefficient based on the estimated adaptive parameter such that the detected air-fuel ratio converges to a desired air-fuel ratio (stoichiometric air-fuel ratio) (see at least lines 24-32 of column 7 and lines 56-59 of column 7);
- EGR correction coefficient calculating means (35) for calculating an EGR correction coefficient when recirculating the exhaust gas to the air intake system (line 65 of column 7 to line 6 of column 8); and
- fuel injection quantity correcting means (35) for correcting the quantity of fuel injection based on at least the feedback correction coefficient and the EGR correction coefficient (lines 51-59 of column 7).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3748

6. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adamczyk, Jr. et al. as applied to claim 1 above, in view of Zahn et al. (U.S. Patent 5,613,359).

Re claim 7, the system of Adamczyk, Jr. et al. discloses the invention as cited above, however, fails to specifically disclose that the valve control means including catalyst temperature parameter detecting means for detecting a parameter relating to a temperature of the catalyst; and determines the period based on the detected parameter.

As illustrated in Figure 1, Zahn et al. disclose an exhaust gas purifying apparatus having a first catalyst (4) and HC adsorber (6) located in a bypass passage (5); wherein an ECU (9) controls a valve (8) in a open position during a period in which the HC adsorber is within a HC adsorbing temperature range. Zahn et al. teach that it is conventional in the art to utilize a temperature detecting means (11) to detect a temperature of the first catalyst such that the period is based on the detected temperature (see claim 1). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Zahn et al. in the system of Adamczyk, Jr. et al., since the use thereof would have been routinely utilized by those with ordinary skill in the art to control an operation of a HC adsorber to minimize HC emissions during an engine cold start.

Re claim 8, in the modified system of Adamczyk, Jr. et al., the valve control means decreases the period with increasing temperature of the catalyst.

Re claim 9, in the modified system of Adamczyk, Jr. et al., the valve control means decreases the period when the engine is under high load (in which an exhaust gas temperature is higher).

Art Unit: 3748

Re claim 10, in the modified system of Adamczyk, Jr. et al., the valve control means decreases the period when the engine is in a failsafe condition (lines 18-25 of column 6).

7. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adamczyk, Jr. et al. in view of Zahn et al. as applied to claim 7 above, and further in view of Tomisawa (U.S. Patent 5,606,855).

Re claim 11, the modified system of Adamczyk, Jr. et al. discloses the invention as cited above, however, fails to specifically disclose that the parameter is a coolant temperature of the engine.

Tomisawa teaches an apparatus for estimating the temperature of a catalyst during an engine start-up simply and accurately by using a coolant temperature sensor (15). Tomisawa further teaches that the apparatus does not include an additional temperature sensor located at the catalyst, which can incur more cost to the apparatus (lines 64+ of column 1). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the apparatus taught by Tomisawa in the modified system of Adamczyk, Jr. et al., since the use thereof would have saved cost and lowered the complexity of the system.

Re claim 12, in the modified system of Adamczyk, Jr. et al., the valve control means decreases the period with increasing temperature of the catalyst.

Re claim 13, in the modified system of Adamczyk, Jr. et al., the valve control means decreases the period when the engine is under high load (in which an exhaust gas temperature is higher).

Re claim 14, in the modified system of Adamczyk, Jr. et al., the valve control means decreases the period when the engine is in a failsafe condition (lines 18-25 of column 6).

***Prior Art***

8. The IDS (PTO-1449) filed on March 16, 2004 has been considered. An initialized copy is attached hereto.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of six patents: Patil et al. (U.S. Patent 5,125,231), Day et al. (U.S. Patent 5,207,734), Adamczyk et al. (U.S. Patent 5,375,414), Fujishita et al. (U.S. Patent 5,388,405), Kuroda et al. (U.S. Patent 5,517,820), and Tanaka et al. (U.S. Patent 5,956,947) further disclose a state of the art.

***Communication***

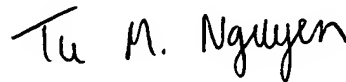
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.



Art Unit: 3748

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink that reads "Tu M. Nguyen". The signature is written in a cursive, flowing style.

TMN

Tu M. Nguyen

April 2, 2006

Primary Examiner

Art Unit 3748